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## Academic dismissal policy for medical students: effect on study progress and help-seeking behaviour

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**CONTEXT** Medical students often fail to finish medical school within the designated time. An academic dismissal (AD) policy aims to enforce satisfactory progress and to enable early identification and timely support or referral of struggling students. In this study, we assessed whether the implementation of an AD policy improved study progress in the first 2 years of medical school. Additionally, we analysed its effect on the help-seeking behaviour of struggling students.

**METHODS** We compared two AD cohorts (entering in 2005 and 2006, respectively) and two non-AD cohorts (entering in 2003 and 2004, respectively) on dropout rates, Year 1 curriculum completion rates and the percentage of students with an optimal study rate (i.e. all modules completed) at 1 and 2 years after enrolment. We also measured the effect on study progress of attending the support meetings offered.

**RESULTS** The AD ( $n = 809$ ) and non-AD cohorts ( $n = 809$ ) did not differ significantly in dropout rate at 5 months, in Year 1 completion rate at 2 years and in the percentage of

optimally performing students at 1 year after enrolment. At 2 years after enrolment, more students from the AD cohorts had left and more non-AD students demonstrated optimal performance, but effect sizes (ESs) for these differences were small. Voluntary support at 4 months was attended by AD students more often than by non-AD students (68.9% versus 39.8%;  $\chi^2_{(1)} = 43.95$ ,  $p < 0.001$ ,  $ES = 0.29$ ). The AD students who attended the support meetings completed the Year 1 curriculum more often than those who did not (73.4% versus 52.5%;  $\chi^2_{(1)} = 10.92$ ,  $p < 0.001$ ,  $ES = 0.20$ ). Attending the obligatory support meeting at 7 months had a similar effect (70.5% versus 33.3%;  $\chi^2_{(1)} = 13.60$ ,  $p < 0.001$ ,  $ES = 0.23$ ).

**CONCLUSIONS** The presence of an AD policy did not lead to earlier dropout, higher completion rates or an improved study rate during the first 2 years at medical school. However, uptake of the support offered increased to almost 70%. Although support participants finished the Year 1 curriculum more often than non-participants, the current support system was not sufficient to improve overall study progress.

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## INTRODUCTION

Medical schools worldwide increasingly seek measures to improve their students' progress.<sup>1,2</sup> A major motive is the large investment involved in a medical student's training for both the student and society. Lack of study progress can be seen as the result of a mismatch between the student and the academic environment.<sup>3,4</sup> The impact of student-related factors on progress in medical school has been widely studied,<sup>5–7</sup> but less is known about what medical schools can do to create an environment that stimulates students to succeed.<sup>8,9</sup> In this study, we examined whether the implementation of an academic dismissal (AD) policy enables medical schools to improve the study progress of their students.

Over recent decades, many studies have identified factors that affect study progress. Most of these studies used the interaction approach, which assumes that study progress is the result of a complex interaction between a student and the academic and social environments.<sup>10–12</sup> Examples of student-related factors that may hamper progress are initial aptitude, academic procrastination, lack of motivation and inability to adapt to the academic environment.<sup>3,5–7,13–16</sup> More recent studies have reported that characteristics of the academic environment, such as teaching methods and styles, examination rules and the presence of remedial support, also affect study progress.<sup>8,9,13,17–19</sup> Apparently, there are measures medical schools can take to improve study progress, the decisive factors of which seem to be their effects on the study efforts of students.<sup>8,19,20</sup>

The challenge for medical schools is to create an academic environment that stimulates students to maintain satisfactory progress. A first step is to encourage efficient use of individual study time and to prevent students from postponing individual study.<sup>9,13,19</sup> One way of doing this involves intensifying the educational process, such as by introducing a more student-centred curriculum.<sup>19</sup> Other measures that appear to positively influence study progress are instigating regularly programmed examinations, fewer parallel modules and fair, but strict, examination rules.<sup>8,18</sup>

A second step is to identify students who are experiencing academic difficulties and to provide them with timely intervention through access to support programmes or, when appropriate, to refer them to another degree programme. Although the impor-

tance of early identification and intervention is well recognised, less is known about successful strategies for identifying and supporting under-performing students.<sup>1,21,22</sup>

A strategy that combines both steps involves the implementation of an AD policy that requires students to make satisfactory study progress. Failure to meet set standards leads first to an academic warning or academic probation and, if the standard progress continues, will subsequently result in academic dismissal. Students who receive an academic warning or who are on probation are offered academic support to assist them to overcome their academic difficulty. Although AD policies are common at universities in the USA, and lately also at Dutch universities, to our knowledge, little has been published about their effect on study progress.

A pilot study in business administration students showed that an AD policy which dismissed students who achieved < 40 out of 60 credits by the end of their first year led to earlier dropout, higher Year 1 completion rates (from 48% to 55% after 2 years) and improved study progress in the first and subsequent years.<sup>23</sup> It should be noted that this study concerned a degree programme on which completion rates and study progress were relatively low before the implementation of the AD policy. It is not known whether similar positive effects on study progress can be found for degree programmes that already have high completion rates, such as those in medicine.<sup>19</sup>

Therefore, the main objective of the current study was to compare the study progress during the first 2 years at medical school of four consecutive student cohorts, of which two entered before and two entered after the implementation of the AD policy. In addition, we evaluated the extent to which the AD policy helped us to identify and support students with academic difficulties. We investigated whether struggling students in the AD cohorts accessed the support offered more often than struggling students in the non-AD cohorts, and whether accessing the support was related to improved study progress.

## METHODS

### Context

The present study was carried out at the Erasmus MC Medical School in the Netherlands. The integrated

and theme-oriented curriculum of this school was implemented in 2001 and comprises 4 years of pre-clinical study and 2 years of clinical training consisting mainly of clerkships. The first year of the pre-clinical phase serves for student selection and orientation and is composed of three thematic blocks of 7–19 weeks and includes 10 examinations. Each examination qualifies the candidate for a fixed number of credits under the European Credit Transfer System (ECTS). One credit equals 28 hours of study; 60 credits represent the maximum number achievable in 1 year.

### Academic dismissal policy

In 2005, Erasmus MC Medical School implemented an AD policy (Table 1). Year 1 students were informed of their academic progress at 4, 7, 12 and 24 months after enrolment. Progress status depended upon the number of credits earned so far and was defined as substandard, average (above standard, but below maximum) or optimal (maximum number of credits). The standard was set at half (at 4 months) and two-thirds (at 7 and 12 months) of the maximum number of credits that could be obtained by that time-point. Substandard progress resulted in an academic warning (at 4 and 7 months), academic probation (at 12 months) or academic dismissal (at 24 months).

The AD policy also included the provision of additional support for students who received an academic warning or were put on probation. At 4 months, these students were invited to a voluntary meeting with a student counsellor to develop a plan for academic improvement. At 7 months, they were invited to a compulsory meeting which

focused on planning for the re-examination period. Students whose progress was substandard at 12 months were allowed to repeat Year 1 (probation) only if they had attended the compulsory meeting at 7 months and agreed to discuss their study progress with a student counsellor every 3 months during their second year.

Students with an 'average' status at 12 months were allowed to engage in Year 2 modules alongside their remaining Year 1 module(s). Dispensation from AD was granted to students affected by temporary personal circumstances, such as illness or the death of a close relative. These students were allowed to continue for a further year.

Before the implementation of the AD policy, students whose progress was substandard received an invitation to attend a voluntary meeting with a student counsellor at 4 months and again at 10 months after enrolment. There were no compulsory meetings and students could not be academically dismissed at any time.

### Participants

Four consecutive cohorts of Erasmus MC Medical School students were entered into the study; these included two non-AD cohorts (entering in 2003 and 2004, respectively) and two AD cohorts (entering in 2005 and 2006, respectively). These cohorts comprised 406, 403, 407 and 402 students, respectively. Data were derived from the university student administration system and anonymity was guaranteed. As data were collected as part of regular academic activities and only aggregate data are reported, individual consent was not necessary.

Table 1 Academic dismissal policy

Time from enrolment, months	Type of action	Substandard (maximum)	Support offered
4	Academic warning	< 10 credits (20.5)	Voluntary meeting with student counsellor
7	Academic warning	< 23 credits (37.5)	Compulsory meeting with student counsellor
12	Academic probation	< 40 credits (60)	Compulsory meeting with student counsellor every 3 months during the second year
24	Academic dismissal	< 60* credits (120)	Possible dispensation for 1 year

\* All 60 credits of the Year 1 curriculum should be completed

## Pre-admission variables and outcome measures

### *Pre-admission variables*

To enable valid comparisons, the AD and non-AD cohorts were contrasted on the pre-admission variables of gender, age and pre-university education grade point average (pu-GPA). The latter represented a student's mean grade obtained during the final year of pre-university education. Final grades were based half on school examinations and half on the national examination.

### *Study progress*

We compared the study progress of two AD cohorts and two non-AD cohorts over the first 2 years in medical school. Three outcome measures were used to compare the effect of the AD policy on study progress: (i) dropout rate; (ii) Year 1 curriculum completion rate, and (iii) study rate. Dropout was defined as the proportion of students from the initial cohorts who left medical school voluntarily or were dismissed. Dropout was measured at 5 months, which was considered as 'early dropout', and at 2 years after enrolment. The period of 5 months was chosen because students in the Netherlands who withdraw within this period retain their full entitlement to government grants. The Year 1 curriculum completion rate was defined as the proportion of students from the initial cohorts who earned all 60 credits in the Year 1 curriculum and was measured at 2 years after enrolment. The study rate was defined as the proportion of students who completed all the required modules at 1 and 2 years after enrolment. This proportion was calculated by dividing the number of students who obtained the maximum of 60 credits each year by the number of students who did not drop out during the first 2 years. Students who were given dispensation and students in the non-AD cohorts who did not complete the Year 1 curriculum within 2 years but remained enrolled were also considered as dropouts because a very low proportion of these students can be expected to eventually complete medical school.

### *Attendance at support meetings*

We compared attendance rates at the voluntary support offered at 4 months in the AD and non-AD cohorts. We also investigated whether attending the support options was related to improved study progress for students whose performance was substandard at 4 and 7 months after enrolment. As no data were available on student level for the

non-AD cohorts, these analyses were restricted to the AD cohorts. The outcome measure was the number of students who completed the Year 1 curriculum within 2 years of enrolment.

## Statistical analysis

Categorical variables were expressed as percentages and continuous variables as mean  $\pm$  standard deviation (SD). Differences in percentages were tested using chi-squared tests, and differences in means using Student's *t*-test. A *p*-value of  $< 0.05$  was considered statistically significant. Effect sizes (ESs) were calculated directly from chi-squared tests with  $ES \approx 0.10$  indicating a small effect,  $ES \approx 0.30$  a medium effect, and  $ES \approx 0.50$  a large effect.<sup>24</sup>

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## RESULTS

### Pre-admission variables

There were no significant differences between the AD and non-AD cohorts with respect to gender (61.6% female versus 61.1% female), mean age (19.45 years versus 19.44 years) and pu-GPA (7.03 versus 6.98).

### Study progress

The difference between the AD and non-AD cohorts in the proportion of early dropouts was not statistically significant, but the cumulative proportion of students who dropped out – both voluntarily and after being dismissed – at 2 years after enrolment was significantly higher in the AD cohorts than in the non-AD cohorts (Table 2). No significant difference was found between the AD cohorts and non-AD cohorts in Year 1 curriculum completion rate at 2 years after enrolment. As a consequence, significantly more students in the non-AD cohorts (8.5%) than in the AD cohorts (3.0%) who did not complete the Year 1 curriculum on time remained enrolled ( $\chi^2_{(1)} = 23.10$ ,  $p < 0.001$ ,  $ES = 0.12$ ). Significantly more students in the non-AD cohorts had an optimal study rate at 2 years after enrolment, whereas the difference between the AD and non-AD cohorts in the proportion of students with an optimal study rate at 1 year after enrolment was not statistically significant (Table 2).

### Attendance at support

The voluntary meeting offered at 4 months was attended by 104 (39.8%) of the students invited in the non-AD cohorts and by 177 (68.9%) of the

Table 2 Study progress in non-academic dismissal (AD) and AD cohorts during the first 2 years at medical school

	Cohort				Statistics		
	Non-AD		AD				
	<i>n</i>	%	<i>n</i>	%	$\chi^2$	<b>p</b>	<b>ES</b>
Completion of Year 1 curriculum*							
≤ 2 years of enrolment	686	84.8	705	87.1	1.85	NS	
Dropout*							
≤ 5 months of enrolment	4	0.5	10	1.2	2.59	NS	
≤ 2 years of enrolment	57 <sup>†</sup>	7.0	88 <sup>‡</sup>	10.9	7.28	< 0.01	0.07
Optimal performance <sup>§</sup>							
At 1 year (60 credits)	487	71.3	470	67.4	2.43	NS	
At 2 years (120 credits)	384	56.2	311	44.6	18.58	< 0.001	0.12

\* Percentage of all students from initial cohort

<sup>†</sup> Three students withdrew despite having completed the Year 1 curriculum; 69 students did not withdraw, but did not complete the Year 1 curriculum<sup>‡</sup> Eight students withdrew despite having completed the Year 1 curriculum; 24 students were given dispensation<sup>§</sup> Excluding dropouts in Years 1 and 2

ES = effect size; NS = not significant

students invited in the AD cohorts. This difference was statistically significant ( $\chi^2_{(1)} = 43.95$ ,  $p < 0.001$ , ES = 0.29). Students in the AD cohorts who accepted the invitation had a higher chance of completing the Year 1 curriculum within 2 years of enrolment than students who refused the invitation (Table 3). In all, 237 (90.8%) of the 261 invited students in the AD cohorts attended the compulsory meeting offered at 7 months. These students completed the Year 1

curriculum within 2 years of enrolment more often than students who did not use the support (Table 3).

## DISCUSSION

This study indicates that instigating an AD policy for medical students does not lead to earlier dropout, or to an increased Year 1 completion rate or an

Table 3 Attendance at support meetings and rate of completion of Year 1 curriculum within 2 years in academic dismissal (AD) cohorts

		Completion of Year 1 curriculum ≤ 2 years				
		AD students		Statistics		
		<i>n</i>	%	$\chi^2$	<i>p</i>	ES
At 4 months (voluntary)	Present	130	73.4	10.92	< 0.001	0.20
	Absent	42	52.5			
At 7 months (compulsory)	Present	167	70.5	13.60	< 0.001	0.23
	Absent	8	33.3			

ES = effect size



improved study rate during the first 2 years at medical school. Although we report several statistically significant differences, the impact of an AD policy on dropout rates and optimal performance is modest. However, there are some practically relevant implications for the help-seeking behaviour of struggling students: the possibility of AD increased participation in the study support offered from 40% to almost 70%, and participants more often completed their Year 1 programme on time.

A possible explanation for our failure to find a positive influence of the AD policy on the study progress of medical students is that the setting of standards also influenced the study behaviour of students whose study progress was satisfactory. As a result, these students may have reduced their study effort as soon as they had obtained the minimum number of credits required. If failing no longer has any clear consequences, other student activities may take precedence over test preparation.<sup>8</sup> In order to improve the study progress of this group, a better option may be to stress the benefits of an optimal study rate, rather than focusing on the minimum standards required.

An additional explanation for the small negative effect on study rates in Year 2 is that, rather than causing students to increase their overall study effort, the new policy caused them to change their study priority and to focus primarily on completing the Year 1 modules. As a result of this change in priority, AD students made less progress in Year 2 modules than did non-AD students. It thus appears that the AD policy induced a greater focus on the Year 1 curriculum and encouraged greater use of study time for this purpose. This behaviour is in line with findings from other reports which suggest that, because study time is limited, parallel examinations compete with one another for study time.<sup>9,18,19,25</sup>

As well as academic dismissal, the policy comprises two warnings and a probation measure for those students who continue to under-perform in the first year after enrolment. The first warning, provided to students who show substandard progress at 4 months, included an invitation to a voluntary meeting with a student counsellor. On the basis of our results, we conclude that students who accepted this invitation had a much higher chance of succeeding than those who refused it. Although this effect of early warning may be explained by the design of the support system provided by the student counsellors, we cannot exclude the possibility that a self-selection

mechanism is at work and that students who are more committed accept the invitation to visit the student counsellor. As the Year 1 completion rate did not increase, the latter explanation appears more plausible. For a subgroup of students, self-reflective behaviour was thus stimulated by AD policy. Nevertheless, this did not always lead to the desired outcome: not all students who needed the support accepted the offer. This reluctance to seek help has been confirmed by other authors.<sup>22,26</sup> For example, Malik reported that 50% of failing students at Dundee Medical School did not seek help from any source.<sup>26</sup>

In addition, other types of support may have been more appropriate for improving the study progress of those who accepted the offer. As the quality rather than the quantity of study hours seems to be the problem for these students, measures focused on improving academic or test competence may be more effective.<sup>27,28</sup> However, such study skills interventions should be content-specific, should focus on the specific problems of the students and should be delivered by the instructor(s) involved or by well-trained senior students.<sup>17,22,26,29</sup>

An obvious positive result of our AD policy is that fewer students without a real prospect of success continue at medical school. However, a disadvantage of the 2-year decision period in our AD policy is that these students still invest 2 years in training before they are dismissed. Apparently, the possibility of dismissal does not incite students to withdraw voluntarily at an earlier stage more often. Future efforts should therefore focus on distinguishing early in Year 1 between students who are willing and able to be remediated and students who will be better off transferring to another degree programme. Making this distinction requires data on factors additional to study progress, such as willingness to participate in support programmes, as suggested by our results. Other factors might include procrastination, motivation, self-efficacy, learning styles and passive learning behaviour.<sup>5,13,15,28,30,31</sup> As data on these factors are not readily available, we aim to collect these with questionnaires early in Year 1 for use in future studies.

The strength of this study refers to its inclusion of four complete cohorts and a prospective design, which allowed us to include dropouts. A possible limitation is the use of historical controls rather than a truly experimental design. However, the cohorts did not differ in age, sex and pu-GPA, and the curriculum did not change over the period of

interest. In addition, the results of this study were based on the interaction of students at Erasmus MC Medical School with that school's curriculum. Although specific characteristics of our curriculum may have influenced the results, the cohorts were representative of all Dutch medical students with regard to entrance variables and Year 1 completion rates.<sup>8</sup>

A practical implication of this study for other medical schools is that it may give rise to questions about whether implementing an AD policy is worth the effort, given the already high completion rates. Setting minimum standards will probably not increase Year 1 completion rates any further nor improve the study progress of students, but it will increase demand for support. Possible positive outcomes are the prevention of some students from pursuing their study without a real prospect of success and the possible identification of a group of at-risk students who are willing to accept support. Some adaptations might be considered before the implementation of an AD policy. Firstly, the type of support offered to students with academic difficulties should be carefully considered. Future research should aim to demonstrate whether, for example, a short, integrated study skills programme might be more effective. Secondly, any AD policy should focus on the earlier identification and subsequent referral of students who might be better off elsewhere. Again, future studies will need to demonstrate which factors can be used to improve this identification. Thirdly, standards might be raised in order to examine whether this will improve study progress. Non-struggling students, in particular, might be expected to demonstrate the ability to improve their study progress if they are stimulated to do so. Finally, the policy might be designed to dismiss all students who fail to meet set standards at 1 year after enrolment. This strategy is used at several Dutch universities. However, before decisions about adaptations can be made, each medical school must resolve the issue of whether it is preferable to invest in students who may eventually fail to finish medical school or to dismiss students who may eventually become good doctors.

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*Contributors:* KMS-J was responsible for conducting the study and writing the manuscript. JC-S, TAWS and APNT supervised the study, contributed to the study conception and design and made critical revisions. All authors contributed to the interpretation of the results, commented on several drafts of the manuscript and approved the final version of the paper.

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